

REMARKS

By this amendment, claims 1-4 have been amended, and claims 5 and 6 have been added. Thus, claims 1-6 are now active in the application. Reexamination and reconsideration of the application is respectfully requested.

The specification and abstract have been carefully reviewed and revised to correct grammatical and idiomatic errors in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification and Abstract by the current amendment. The attachment is captioned "**Version with markings to show changes made.**"

In item 1 on page 2 of the Office Action, the Examiner required that the Abstract of the Disclosure be revised to read on the claimed method invention. Accordingly, the Abstract has been revised to more specifically set forth the steps as presented in the independent method claim 1.

In item 2 on page 2 of the Office Action, claims 2-4 were objected to for using the phrase "A method" instead of --The method--. Accordingly, the dependent claims 2-4 have been amended to recite --The method-- as suggested by the Examiner.

Next, in item 5 on page 4 of the Office Action, the Examiner kindly indicated that claims 2 and 4 would be allowable if rewritten to overcome the objection and rewritten in independent form to include all of the limitations of the base claim and any intervening claims. This indication by the Examiner is acknowledged and appreciated.

In items 3 and 4 on pages 2 and 3 of the Office Action, claims 1 and 3 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kurogi et al. (U.S. 6,209,776) in view of Nakaya (2003/0010813). This rejection is respectfully traversed, and it is respectfully requested that this rejection be withdrawn, for the following reasons.

Initially, it is noted that minor amendments have been made to claim 1, but that these amendments do not narrow the claim scope. Rather, the amendments are presented in order to remove "the steps of" phrase so as to ensure that the claim limitations are not unduly narrowly construed under 35 U.S.C. 112, sixth paragraph. Also, the phrase "vertically opposite to each other" has been changed to --opposite to each other--, and the phrases "on a solder" and "on said solder" have been changed to --against a solder-- and --against said solder--, respectively, so as to clarify that the invention is not limited to the specifically-illustrated embodiment showing the electrodes 5, 7 vertically aligned one above the other, and with the coated lead wire vertically provided atop the solder 4. One additional revision to claim 1 was to change "said core wire" to -said lead wire-- to provide consistency of terminology in the claim.

Thus, with exemplary reference to the drawing figures, claim 1 sets forth a method for connecting a coated lead wire 2 to a terminal 3 of a coil bobbin 1, comprising: placing a pair of electrodes 5, 7 having heating portions 5A, 7A opposite to each other; entwining the coated lead wire 2 around the terminal 3 of the coil bobbin 1; placing the terminal 3 entwined with the coated lead wire 2 against a solder 4; putting the terminal 3 entwined with the coated lead wire 2 placed against the solder 4 into between the electrodes 5, 7; directing a blow of inert gas (e.g. from supply tube 9) toward the terminal 3 entwined with the coated lead wire 2 placed against the solder 4 between the electrodes 5, 7; supplying electric currents to the electrodes 5, 7 to heat the heating portions 5A, 7A for melting the solder 4 while exerting pressure to the terminal 3 entwined with the coated lead wire 2 between the electrodes 5, 7; and releasing the pressure exerted to the terminal 3 entwined with the lead wire 2 after a lapse of a prescribed period of time from commencement of generating heat at the heating portions 5A, 7A of the electrodes 5, 7 and exerting pressure to the terminal 3 entwined with the coated lead wire 2.

Thus, according to claim 1, the terminal 3 entwined with the coated lead wire 2 is placed against a solder 4, and then this entwined terminal is placed between the electrodes 5, 7, and electric current is supplied to the electrode to heat the heating portions of the electrode to melt the solder while pressure is exerted to the entwined terminal 3.

In contrast, in the method disclosed in the Kurogi et al. patent, the electrodes 40 of Kurogi et al. (Fig. 4) are welding electrodes, not soldering electrodes. Thus, as specifically disclosed at column 4, lines 52-65 of the Kurogi et al. patent, when the terminal 72 is disposed between the welding electrodes 40, 40, current is passed between the electrodes "to melt the surfaces of the terminal piece 72 and lead 63 and join them together by spot welding," (column 4, lines 57-59). There is no solder used together with the welding electrodes 40, as required by present claim 1.

Furthermore, in Kurogi et al., the welding electrodes 40 are used, not to connect the entwined conductor 75 to the terminal 72, but rather to connect the terminal 72 to the lead 63 of the diodes 6a. It is not until after the lead 63 of the diode 6a has been connected to the terminal piece 72 by spot welding using the welding electrodes 40 that the entwined conductor 75 is connected to the terminal 72 by solder 67, as shown in Fig. 5. However, the solder 67 is not provided to the terminal 72 to connect the entwined conductor 75 to the terminal 72, as specifically recited in present method claim 1. Rather, as described in the Kurogi et al. patent at column 4, line 66 - column 5, line 15, the solder 67 in Kurogi et al. is provided by dipping the terminal 72 entwined by the conductor 75 in a solder bath (see especially column 5, lines 1-8).

It is further noted that these specific spot welding and solder dipping steps disclosed in Kurogi et al. are described in Kurogi et al. as being advantageous so as to allow the sequence of operations to be effected automatically (see column 5, lines 31-40).

Thus, in contrast to the present inventive method of claim 1, the Kurogi et al. patent does not disclose or suggest putting the terminal entwined with the coated lead wire placed against the solder into between the electrode, and supplying electric current to the electrodes to heat the heating portions for melting the solder by exerting pressure to the terminal entwined with the coated lead wire between the electrodes.

In addition, as recognized by the Examiner, the Kurogi et al. patent does not disclose or suggest directing a blow of inert gas toward the terminal entwined with the coated lead wire placed against the solder between the electrodes, as required by claim 1. The Examiner cited the

Nakaya reference for teaching "the use of inert gas during the process of soldering (as discussed on page 7, col. 2, lines 18-19)."

However, it is noted that the inventive method of the present claim 1 specifies that the blow of inert gas be directed toward the terminal entwined with the coated lead wire placed against the solder between the electrodes. In contrast, the method disclosed in the Nakaya reference involves blowing inert gas G (via inert gas nozzle 50; see Fig. 10) only against the base portion of the terminal (i.e. the upper end of the terminal as shown in Fig. 10) and against the bobbin Wa. The inert gas G is not blown against the end portion (i.e. bottom end portion in Fig. 10) of the terminal having the coil entwined thereon where it is desired to solder the coil to the terminal. Accordingly, if the teaching of Nakaya was somehow applied to the Kurogi et al. patent, the inert gas would not be blown toward the portion of the terminal entwined with the coated lead wire placed against the solder between the electrodes.

Accordingly, it is believed clear that the Nakaya reference does not suggest the specific step of directing the blow of inert gas toward the terminal entwined with the coated lead wire placed against the solder between the electrodes, as required by claim 1.


Therefore, for the above reasons, it is believed clear that the Kurogi et al. patent fails to teach or suggest, not only the inert gas blowing step of present claim 1, but also the specific soldering steps of claim 1 as discussed above. Accordingly, it is submitted that the combination of Kurogi et al. and Nakaya does not render obvious the present invention of claim 1. Furthermore, it is submitted that a person of ordinary skilled in the art would not have been motivated to modify the Kurogi et al. arrangement in view of Nakaya in such a manner as to result in or otherwise render obvious the present invention of claim 1, especially since the Nakaya reference does not teach the specific inert gas blowing step as required by claim 1. Therefore, it is respectfully submitted that claim 1, as well as claims 2-6 which depend therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Kazukiyo YAMAMOTO et al.

By: 
Charles R. Watts
Registration No. 33,142
Attorney for Applicants

CRW/asd
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
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